Name: _____   Date: _____
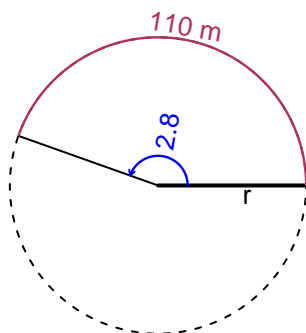
Trig Final (Practice v50)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.
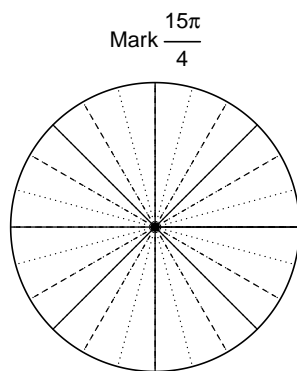
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 2.8 radians. The arc length is 110 meters. How long is the radius in meters?
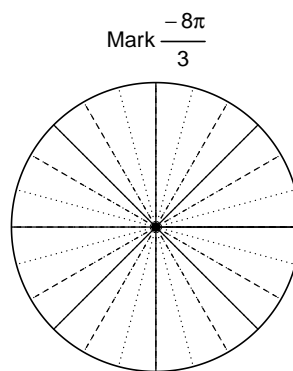

Question 2

Consider angles $\frac{15\pi}{4}$ and $\frac{-8\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{15\pi}{4}\right)$ and $\sin\left(\frac{-8\pi}{3}\right)$ by using a unit circle (provided separately).

Mark $\dfrac{15\pi}{4}$

Find cos(15π/4)

Mark $\dfrac{-8\pi}{3}$

Find sin(−8π/3)

1

Question 3

If $\cos(\theta) = \frac{8}{17}$, and θ is in quadrant IV, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = 3.55$ meters, an amplitude of 5.06 meters, and a frequency of 6.33 Hz. At $t = 0$, the mass is at the midline and moving up. Write an equation to model the height (y in meters) as a function of time (t in seconds).